Amendment to the Claims:

1. (Currently Amended) A method for measuring a desired condition, in an environment which is contaminated by stray noise signals at various frequencies within a preselected spectrum comprising:

randomizing a clock signal;

selecting frequencies randomly within [[a]] the preselected spectrum in accordance with the randomized clock signal such that ~~randomized~~ the selected frequencies within the spectrum are randomly selected and randomly changed;

directing spread spectrum input signals into a medium at the randomly selected frequencies;

detecting output signals from the medium, each output signal detected at a frequency that corresponds to the frequency of a corresponding input signal directed into the medium such that the frequencies of the input and output signals randomly change in unison;

generating a measured parameter signal from the detected output signal;

analyzing the measured parameter signal to determine the desired condition.

2. (Currently Amended) The method of claim 6, wherein the step[[s]] of directing the spread spectrum input signals into the medium comprises transmitting spread spectrum current signals into the medium.

3. (Currently Amended) The method of claim [[2]] 1, wherein the step[[s]] of directing input signals into the medium includes transmitting current signals into the medium and the step of detecting ~~response~~ the output signals that correspond to the input current signals directed into the medium comprises measuring voltage signals.

4. (Currently Amended) The method of claim 6, wherein the step[[s]] of directing the spread spectrum input signals into the medium comprises transmitting spread spectrum voltage signals into the medium.

5. (Currently Amended) The method of claim 4, wherein the steps of detecting response signals that correspond to the input voltage signals directed into the medium comprises measuring current signals.

6. (Currently Amended) A method for measuring a desired condition in a location which may have noise within a selected frequency spectrum, comprising:

generating a randomized clock signal for ~~spreading a signal~~ changing frequencies randomly around the ~~across a~~ selected frequency spectrum;

directing ~~spread spectrum electrical~~ input signals with the randomly changed frequencies of ~~spread across~~ the selected frequency spectrum to the medium;

detecting electrical response signals at the frequencies of the input signals;

generating ~~impedance~~ measured parameter signals from the input and response signals at each input signal frequency;

analyzing the measured ~~impedance~~ parameter signals at a plurality of the randomly changed frequencies to determine the desired condition based on measured impedance signals least contaminated by noise within the selected frequency spectrum.

7. (Currently Amended) The method of claim 6, wherein the step[[s]] of analyzing the measured ~~impedance~~ parameter signals to determine the desired condition comprises analyzing the impedance signal to determine a contact impedance of a device electrode.

8. (Currently Amended) The method of claim 6, wherein the measured parameter signals are impedance signals and the step[[s]] of analyzing the measured ~~impedance~~ parameter signals to determine the desired condition comprises analyzing the impedance signal to determine a heart rate of a patient.

9. (Currently Amended) The method of claim 6, wherein the measured parameter signals are impedance signals the step[[s]] of analyzing the measured ~~impedance~~ parameter signals to determine the desired condition comprises analyzing the impedance signal to determine a respiration rate of a patient.

10. (Currently Amended) The method of claim 1, wherein the frequency spectrum is an ultrasonic frequency spectrum and the step[[s]] of directing the ~~spread spectrum~~ input signals into the medium comprises transmitting ~~spread spectrum~~ ultrasound signals into the medium at the randomly changed frequencies.

11. (Currently Amended) The method of claim 10, wherein the steps of analyzing the measured parameter signal to determine the desired condition comprises analyzing echoes at each frequency of the ~~spread spectrum~~ ultrasound signal to determine the heart rate of a patient.

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (Cancelled)

16. (Cancelled)

17. (Previously Presented) A spread spectrum measurement device for measuring a desired physiological condition of a patient while avoiding degradation in an accuracy of the measured physiological conditions due to interference from nearby electronic equipment, the device comprising:

means for transmitting signals at different frequencies into a medium;

means for detecting signals from the medium at the different frequencies;

means for generating a measured parameter signal from pairs of the transmitted and detected signals at common frequencies;

means for analyzing the measured parameter signal to measure the desired physiological condition;

means for generating a clock signal;

a random number generator; and

a divider which receives the clock signal and generated random numbers to generate a randomized clock signal, the randomized clock signal being conveyed to the transmitting means and to the detecting means to control the transmitting means and the detecting means to transmit and detect signals at random frequencies across a selected spectrum.

18. (Currently Amended) A spread spectrum measurement device at least partially comprised within a computer readable medium, comprising:

logic configured to direct a spread spectrum signal into a medium;

logic configured to detect a parameter that corresponds to the signal directed into the medium;

logic configured to generate a measured parameter signal from the detected parameter;

logic configured to analyze the measured parameter signal to determine a desired physiological condition including at least one of:

heart rate;

blood flow;

blood pressure;

respiration rate;

contact impedance;

tissue images;

blood oximetry measurements; and

logic configured to generate a clock signal that is used to spread the signal directed into the medium across a desired frequency by randomizing the clock signal with a random number generator and a divider.

19. (Cancelled)

20. (Currently Amended) A spread spectrum medical diagnostic measurement device comprising:

a medium interface;

a signal transmitter which transmits a spread spectrum electrical input signal to the medium interface;

a signal detector configured to detect a spread spectrum electrical detected signal at the medium interface, the signal detector being in electrical communication with the medium interface;

a signal processor configured to analyze the spread spectrum electrical detected signal detected by the signal detector; and

a random signal generator configured to generate a clock signal that is used to ~~spread~~ randomly change frequencies, the electrical input signal directed to the medium ~~across~~ randomly around a ~~desired~~ selected frequency spectrum by randomizing the clock signal with a random number generator and a divider.

21. (Previously Presented) The device of claim 28, wherein the transmitter transmits a spread spectrum ultrasound signal.

22. (Previously Presented) The device of claim 28, wherein the transmitter transmits a spread spectrum light signal.

23. (Cancelled)

24. (Previously Presented) The method of claim 6 wherein the generating the randomized clock signal includes:

generating a clock signal;

generating random numbers;

dividing the clock signal by the generated random numbers to generate the randomized clock signal.

25. (Previously Presented) The device of claim 17 wherein the analyzing means determines impedance at each of the transmitted and detected frequencies.

26. (Previously Presented) The device of claim 25 wherein the analyzing means analyzes the physiological condition measured at each frequency for consistency, inconsistent measurements being indicative of interference.

27. (Previously Presented) The device of claim 20 wherein the signal processor determines at least one of contact impedance, heart rate, and respiration rate from the analyzed spread spectrum electrical detected signal.

28. (Currently Amended) A spread spectrum physiological condition measurement device including:

a medium which contacts a patient;

a transmitter for conveying an input signal to the medium at selectable frequencies;

a signal detector electrically connected to the medium to detect signals at the selectable frequencies;

a random signal generator which supplies a signal to the transmitter and the signal detector which causes signals to be transmitted and received at each of a plurality of randomly selected frequencies within a preselected spectrum;

a processor programmed to:

analyze the detected signals to measure a selected physiological condition at the plurality of frequencies to generate a plurality of redundant measurements of the physiological condition ~~that~~ at least one of which is isolated from interference on one or some of the plurality of frequencies.